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09/802,410

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Aravind Sitaraman

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08/11/2004

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EXAMINER

TON, ANTHONY T

ART UNIT

PAPER NUMBER

2661

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 09/802,410	<b>Applicant(s)</b> SITARAMAN ET AL.	
	<b>Examiner</b> Anthony T Ton	<b>Art Unit</b> 2661	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 March 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 16-27, 31-42, 46-57 and 61 is/are rejected.
- 7) ☒ Claim(s) 13-15, 28-30, 43-45 and 58-60 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date June 04, 2001.
- 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Specification***

1. The disclosure is objected to because of the following informalities:

The **Serial No.** of a **U.S. Patent Application** listed in line 1 of page 3 should be specified.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. **Claims 1-61** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) **Claims 1 and 31** recite the limitation "said first communication network" in lines 3-4.

There is insufficient antecedent basis for this limitation in the claims.

b) **Claim 16** recites the limitation "said first communication network" in lines 4-5. There is insufficient antecedent basis for this limitation in the claim.

c) **Claim 46** recites the limitation "said first communication network" in line 4. There is insufficient antecedent basis for this limitation in the claim.

d) The limitation "**said remote domain**" recited in Claim 9 in line 2; in Claim 10 in lines 2-3 and line 4; in Claim 12 in lines 3-4; in Claim 13 in lines 3-4; in Claim 14 in lines 5-6; and in Claim 15 in lines 1-2 and line 4. There is insufficient antecedent basis for this limitation in the claims.

e) The limitation "**said remote domain**" recited in Claim 24 in lines 2-3; in Claim 25 in lines 2-3 and lines 4-5; in Claim 27 in lines 3-4; in Claim 28 in lines 3-4; in Claim 29 in lines 5-6; and in Claim 30 in line 2 and line 4. There is insufficient antecedent basis for this limitation in the claims.

f) The limitation "**said remote domain**" recited in Claim 39 in line 3; in Claim 40 in lines 2-3 and lines 4-5; in Claim 42 in lines 4-5; in Claim 43 in lines 3-4; in Claim 44 in lines 5-6; and in Claim 45 in line 2 and line 4. There is insufficient antecedent basis for this limitation in the claims.

g) The limitation "**said remote domain**" recited in Claim 54 in lines 2-3; in Claim 40 in lines 2-3 and lines 4-5; in Claim 55 in line 2; in Claim 58 in line 4; in Claim 59 in line 4; and in Claim 60 in line 2 and line 4. There is insufficient antecedent basis for this limitation in the claims.

h) The limitation "**the basis**" recited in Claim 1 in line 7; in Claim 16 in line 8; in Claim 31 in line 7; and in Claim 46 in line 8. There is insufficient antecedent basis for this limitation in the claims.

i) The limitation "**the available bandwidth**" recited in Claims 10, 25 and 40 in line 2; in Claims 13, 28 and 43 in line 3; in Claims 14, 29 and 44 in line 5; and in Claim 59 in lines 3-4. There is insufficient antecedent basis for this limitation in the claims.

j) The limitation "**the time**" recited in Claims 12, 27 and 42 in line 2. There is insufficient antecedent basis for this limitation in the claims.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 1, 3-5, 7, 9, 11, 16, 18-20, 22, 24, 26, 31, 33-35, 37, 39, 41, 46, 48-50, 52, 54 and 56** are rejected under 35 U.S.C. 102(e) as being anticipated by **Mauger** (US Patent No. 6,522,627).

a) **In Regarding to Claim 31: Mauger disclosed** an apparatus for dynamic ingress to egress tunnel mapping on a communication network (*see Fig.4*), the apparatus comprising:

means for receiving a tunneled communication from a subscriber using said first communication network (*see Fig.4: 47 and T41*), said communication network connected to at least one communication network by at least one egress tunnel (*see Fig.4: IP over SDH/Ethernet/ATM, and Egress*);

means for determining egress tunnel selection criteria for said tunneled communication (*see block of Tunnel Status Store in Fig.4*), said egress tunnel selection criteria indicating a basis for selecting one of said at least one egress tunnel (*see col.5 lines 55-64*);

means for selecting one of said at least one egress tunnel based on said egress tunnel selection criteria (*see col.6 lines 24-30*); and

means for forwarding said tunneled communication on the selected egress tunnel (*see Fig.4: 48 and T42, and Fig.7: packet forwarding fabric*).

b) **In Regarding to Claim 33: Mauger further disclosed** the apparatus wherein said tunneled communication comprises a Point-to-point Protocol (PPP) session (*see col.3 lines 21-25*).

c) **In Regarding to Claim 34: Mauger further disclosed** the apparatus wherein said tunnels comprise L2TP tunnels (*see col.5 lines 9-13*).

d) **In Regarding to Claim 35: Mauger further disclosed** the apparatus wherein said means for selecting further comprises:

means for determining an ingress tunnel ID for said tunneled session, said ingress tunnel ID uniquely identifying an ingress tunnel including said PPP session (*see Fig.4: Tunnel Status Store in the Ingress side; an col.5 line 55 – col.6 line 6*); and

means for selecting one of said one or more available egress tunnels based on said ingress tunnel ID (*see Fig.4: at the Egress side; see col.5 line 61 – col.6 line 9; and col.6 lines 24-35*).

e) **In Regarding to Claim 37: Mauger further disclosed** the apparatus wherein said means for selecting further comprises:

means for examining Type of Service (TOS) bits associated with said PPP session (*see Fig.2: 3 bits of COS (class of service) in the L-d section of packets P1 – P5*); and

means for selecting one of said one or more available egress tunnel based on said TOS bits (*see col.4 lines 47-50: L-d*).

f) **In Regarding to Claim 39: Mauger further disclosed** the apparatus wherein said means for selecting further comprises means for randomly selecting one of said one or more available egress tunnel connected to a remote domain (*see Fig.4 and col.6 lines 6-9*).

g) **In Regarding to Claim 41: Mauger further disclosed** the apparatus wherein said means for selecting further comprises:

means for determining a time at which said PPP session is received (*see col.1 lines 39-51 and col.4 lines 39-40: time to live (hence, a time at which the PPP session is received can be obtained)*); and

means for selecting one of said one or more available egress tunnel based on said time (*see Fig.4 and col.2 lines 56-64*).

h) **In Regarding to Claims 46, 48-50, 52, 54 and 56:** the subject matters of these claims are the same as that of the claims 31, 33-35, 37, 39 and 41, respectively. Therefore, these claims 46, 48-50, 52, 54 and 56 are also rejected as the same reasons of claims 31, 33-35, 37, 39 and 41.

i) **In Regarding to Claims 1, 3-5, 7, 9 and 11:** these claims are rejected for the same reasons as claims 31, 33-35, 37, 39 and 41, respectively because the apparatus in these claims can be used to practice the method steps of the claims 1, 3-5, 7, 9 and 11.

j) **In Regarding to Claims 16, 18-20, 22, 24 and 26:** these claims would be rejected in the same reasons as claims 1, 3-5, 7, 9 and 11, respectively because it is well known in the art that method steps can be programmed to automate a process. The resulting program storage device readable by a machine is considered as firmware that the apparatus uses to perform the method steps.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 2, 8, 17, 23, 32, 38, 47 and 53** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Mauger** (US Patent No. **6,522,627**) in view of **Dunn et al.** (US Patent No. **6,741,599**) hereinafter referred to as **Dunn**.

a) **In Regarding to Claim 32: Mauger disclosed** all aspects of this claim as set forth in claim 31.

**Mauger failed to explicitly disclose** the apparatus which further comprising means for initializing a tunnel database that includes tunnel selection criteria for at least one egress tunnel connecting said first communication network to said at least one communication network.

**Dunn disclosed** such means for initializing a tunnel database (*see Figs.5 and 7: 78, and col.8 lines 46-52*).

At the time of the invention, it would be obvious to a person of ordinary skill in the art to combine such means for initializing a tunnel database, as taught by Dunn with Mauger, so that a point-to-point protocol (PPP) packet can be operated properly throughout a LAC network. The motivation for doing so would have been to provide a PPP packet that can be handled transparently by a L2TP access concentrator (LAC). Therefore, it would have been obvious to combine Dunn with Mauger in the invention as specified in the claim.

b) **In Regarding to Claim 38: Mauger disclosed** all aspects of this claim as set forth in claims 31, 33 and 34.

**Mauger failed to explicitly disclose** the apparatus wherein said means for selecting further comprises means for examining a Virtual Path Identifier (VPI)/Virtual Channel identifier



(VCI) pair associated with said PPP session; and means for selecting one of said one or more available egress tunnel based on said VPI/VCI pair.

**Dunn disclosed** such a means for selecting further comprises means for examining a Virtual Path Identifier (VPI)/Virtual Channel identifier (VCI) pair associated with said PPP session, and means for selecting one of said one or more available egress tunnel based on said VPI/VCI pair (*see col.7 line 46 – col.8 line 40*).

At the time of the invention, it would be obvious to a person of ordinary skill in the art to combine such a means for selecting further comprises means for examining a Virtual Path Identifier (VPI)/Virtual Channel identifier (VCI) pair associated with said PPP session, and means for selecting one of said one or more available egress tunnel based on said VPI/VCI pair, as taught by Dunn with Mauger, so that a PPP packet can be implemented with an ATM tunnel to an Enhancement Service Provider (ESP). The motivation for doing so would have been to provide a connection throughout a communication network either a permanent virtual circuit or switched virtual circuit. Therefore, it would have been obvious to combine Dunn with Mauger in the invention as specified in the claim.

c) **In Regarding to Claims 47 and 53:** the subject matters of these claims are the same as that of the claims 32 and 38, respectively. Therefore, these claims 47 and 53 are also rejected as the same reasons of claims 32 and 38.

d) **In Regarding to Claims 2 and 8:** these claims are rejected for the same reasons as claims 32 and 38, respectively because the apparatus in these claims can be used to practice the method steps of the claims 2 and 8.

e) **In Regarding to Claims 17 and 23:** these claims would be rejected in the same reasons as claims 2 and 8, respectively because it is well known in the art that method steps can be programmed to automate a process. The resulting program storage device readable by a machine is considered as firmware that the apparatus uses to perform the method steps.

8. **Claims 10, 12, 25, 27, 40, 42, 55 and 57** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Mauger** (US Patent No. 6,522,627)

a) **In Regarding to Claims 40 and 42:** **Mauger further disclosed** the apparatus wherein said means for selecting further comprises:

means for determining an available bandwidth for at least one egress tunnel to a remote domain (*see Fig.4 and col.7 lines 24-56*);

means for determining a time at which said PPP session is received (*see col.1 lines 39-51 and col.4 lines 39-40: time to live (hence, a time at which the PPP session is received can be obtained)*); and

means for determining an available bandwidth for at least one egress tunnel to a remote domain (*see Fig.4 and col.7 lines 56-64*).

**Mauger failed to explicitly disclose** means for selecting one of said one or more available egress tunnel having the most available bandwidth at said time.

**However, Mauger inherently disclosed** such a means for selecting one of one or more available egress tunnel having the most available bandwidth at said time because Mauger disclosed some principles of the control architecture of arrangement as shown in Fig.4 and illustrated in Figs.6 and 6a. In which, it allows each node to establish a topology database. The

topology state packets are sent on a regular basis and contain for example information on available bandwidth. In a large network the amount of topology information may grow to the point where it becomes difficult or impossible to communicate (*hence, maximum bandwidth*) (*see col.7 lines 24-35*).

Therefore, at the time of the invention, it would be obvious to a person of ordinary skill in the art to combine such a means for selecting one of said one or more available egress tunnel having the most available bandwidth at said time teaching in the instant claims with Mauger, so that a maximum available bandwidth can be implemented throughout an appropriate egress tunnel of a L2TP network. The motivation for doing so would have been to maximize network availability and reliability in bandwidth allocation. Thus, it would have been obvious to combine the instant claims with Mauger in the invention as specified in the claims.

**b) In Regarding to Claims 55 and 57:** the subject matters of these claims are the same as that of the claims 40 and 42, respectively. Therefore, these claims 55 and 57 are also rejected as the same reasons of claims 40 and 42.

**c) In Regarding to Claims 10 and 12:** these claims are rejected for the same reasons as claims 40 and 42, respectively because the apparatus in these claims can be used to practice the method steps of the claims 10 and 12.

**d) In Regarding to Claims 25 and 27:** these claims would be rejected in the same reasons as claims 10 and 12, respectively because it is well known in the art that method steps can be programmed to automate a process. The resulting program storage device readable by a machine is considered as firmware that the apparatus uses to perform the method steps.

9. **Claims 6, 21, 36 and 51** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Mauger** (US Patent No. 6,522,627) in view of **Verma et al.** (US Patent No. 6,614,809) hereinafter referred to as **Verma**.

a) **In Regarding to Claim 36: Mauger disclosed** all aspects of this claim as set forth in claims 31, 33 and 34.

**Mauger failed to explicitly disclose** the apparatus wherein said means for selecting further comprises means for determining a subscriber domain for said tunneled session; and means for selecting one of said one or more available egress tunnels based on said subscriber domain.

**Verma disclosed** such a means for selecting further comprises means for determining a subscriber domain for said tunneled session, and means for selecting one of said one or more available egress tunnels based on said subscriber domain (*see Fig.5 and col.5 line 51 – col.6 line 64*).

At the time of the invention, it would be obvious to a person of ordinary skill in the art to combine such a means for determining a subscriber domain for said tunneled session, and means for selecting one of said one or more available egress tunnels based on said subscriber domain, as taught by Verma with Mauger, so that a domain requested by a subscriber can be provided properly. The motivation for doing so would have been to provide an appropriate Internet service such as a dot COM “.com” or a dot net “.net” to a subscriber. Therefore, it would have been obvious to combine Verma with Mauger in the invention as specified in the claim.

b) **In Regarding to Claim 51:** the subject matters of this claim are the same as that of the claim 36. Therefore, this claim 51 is also rejected as the same reasons of claim 36.

c) **In Regarding to Claim 6:** this claim is rejected for the same reasons as claim 36 because the apparatus in this claim can be used to practice the method steps of the claim 6.

d) **In Regarding to Claim 21:** this claim would be rejected in the same reasons as claim 6 because it is well known in the art that method steps can be programmed to automate a process. The resulting program storage device readable by a machine is considered as firmware that the apparatus uses to perform the method steps.

10. **Claim 61** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Mauger** (US Patent No. 6,522,627) in view of **Adelman et al.** (US Patent No. 6,078,957) hereinafter referred to as **Adelman**.

**Mauger disclosed** all aspects of this claim as set forth in claims 46, 48 and 49.

**Mauger failed to explicitly disclose** the apparatus further comprising a monitor to periodically assess the loading of said apparatus, and a notifier to indicate that ingress tunnels should be directed to a different apparatus when said loading exceeds a predetermined threshold.

**Adelman disclosed** such a monitor to periodically assess the loading of said apparatus, and a notifier to indicate that ingress tunnels should be directed to a different apparatus when said loading exceeds a predetermined threshold (*see Fig.8B and col.8 lines 14-54*).

At the time of the invention, it would be obvious to a person of ordinary skill in the art to combine such a monitor to periodically assess the loading of said apparatus, and a notifier to indicate that ingress tunnels should be directed to a different apparatus when said loading exceeds a predetermined threshold, as taught by Adelman with Mauger, so that a maximum available bandwidth can be implemented throughout a L2TP network. The motivation for doing

so would have been to maximize network availability and reliability in a L2TP network.

Therefore, it would have been obvious to combine Adelman with Mauger in the invention as specified in the claim.

***Allowable Subject Matter***

11. **Claims 13-15, 28-30, 43-45 and 58-60** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


***Examiner Information***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony T Ton whose telephone number is 703-305-8956. The examiner can normally be reached on M-F: 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W Olms can be reached on 703-305-4703. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ATT  
7/31/04

  
Phirin Sam  
8/5/04